IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

OPTIS WIRELESS TECH., LLC, ET AL.,	
Plaintiffs,	**CIVIL ACTION NO.**
v.	**2:17-cv-123-JRG-RSP**
HUAWEI DEVICE CO. LTD., ET AL.,	
Defendants.	**JURY TRIAL REQUESTED**

PLAINTIFFS' BRIEF REGARDING ABSTRACTNESS OF '293 PATENT UNDER STEP ONE OF ALICE TEST

Claims 12 and 14[1] of the '293 patent are directed to an improved apparatus for triggering uplink scheduling requests in a mobile device, not the abstract idea of scheduling. Like the improved systems claimed in *Enfish, LLC v. Microsoft Corp*., 822 F.3d 1327, 1338-39 (Fed. Cir. 2016), *Thales Visionix Inc. v. United States*, 850 F.3d 1343, 1349 (Fed. Cir. 2017), *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1259 (Fed. Cir. 2017), *Finjan Inc. v. Blue Coat Systems, Inc.*, 879 F3d 1299, 1305 (Fed. Cir. 2018) and *Core Wireless Licensing S.A.R.L. v. LG Electronics, Inc.*, 880 F.3d 1356, 1363 (Fed. Cir. 2018), the asserted claims recite a specific improvement over prior systems, resulting in an improved scheduling system for mobile terminal devices, rather than claiming the idea of scheduling generally. Similarly, the specification states that an object of the invention is "to provide improved systems and methods for triggering uplink scheduling requests in a telecommunication system." '293 patent col. 2:65-67.

The relevant question under the first step of the *Alice* framework is whether the claim is directed to an abstract idea or to a concrete improvement in the functionality of the device itself. *See Enfish*, 822 F.3d at 1335-36 ("the first step in the Alice inquiry in this case asks whether the focus of the claims is on the specific asserted improvement . . . or, instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool."). The Federal Circuit has repeatedly held that claims focused on improvements of systems are "directed to patent eligible subject matter under § 101." *Core Wireless*, 880 F.3d at 1362. In *Core Wireless*, the court affirmed a finding of pantentability under § 101 because the claims were directed to improved user interfaces—a "particular manner of summarizing and presenting information in electronic devices"—not to the abstract idea of an index, or the general idea of summarizing information. *Id*. As another example, in *Visual Memory*, the court held that claims directed to an

[1] PanOptis is asserting claim 14 at trial, which depends from claim 12.

improved computer memory system with programmable operational characteristics defined by the processor were directed to patent-eligible subject matter. 867 F.3d at 1259-60.

Claims 12 and 14 of the '293 patent are no different. These claims relate to scheduling in LTE networks, and recite a particular configuration of a mobile terminal for requesting resources from, and transmitting signals and data to, a base station—a particular technical solution that improved the cellular telecommunications systems. It is noteworthy that although Huawei has alleged that claims 12 and 14 are directed to the abstract idea of "scheduling of resources in a telecommunications system," Huawei does not argue that these claims would cover all telecom scheduling generally—in fact, Huawei's expert argues that there is a type of scheduling in LTE networks that wholly fall ***outside*** of the claims, and certain situations where the method claims of the '293 patent would not be infringed even during the accused scheduling processes. *See Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, Case No. 2:14-cv-911-JRG-RSP, 2016 WL 4768827 at *8 (E.D. Tex. Aug. 8, 2016) (noting in denying LG's summary judgment motion that LG did not argue that the asserted claim would cover all "traffic metering" generally or preempt all forms of "traffic metering" in the context of mobile device networks).

"Scheduling of resources in a telecommunications system" is a broad concept, and not claimed by the '293 patent. Some wireless scheduling concepts allow mobile devices to transmit autonomously without external scheduling, but in others the base station (or eNodeB, or cell tower) needs to be able to allocate "resources" (e.g., frequency, time and/or power) to mobile phones for uplink transmissions. In these systems, the mobile phones request resources by informing the base station they have data to send, and how much, and the base station allocates resources in response. This high level concept, however, is not easy to implement—nor is it consistently implemented the same way across different telecommunications systems.

Claim 12 relates to a specific technical solution in this context. In particular, Claim 12 requires a mobile terminal comprising "a transmit buffer" and "a data processor." '293 Patent cl. 12. The data processor must be configured to "(a) cause the mobile terminal to transmit a scheduling request (SR) to a base station" specifically "in response to data arriving at an empty transmit buffer in the mobile terminal." *Id.* Then, "in response to receiving a scheduling grant (SG) from the base station" the data processor must be further configured to "cause the mobile terminal to transmit to the base station transmit buffer status information." *Id.* The patent then requires the processor configuration to both "(c1) determine whether a scheduling request triggering event has occurred" and "(c2) cause the mobile terminal [to] transmit a second SR to the base station at a next opportunity in response to determining that a triggering event has occurred." *Id.* This determination and transmission must be configured to occur "while at least some of the first data is waiting to be transmitted to the base station and after transmitting the buffer status information, but prior to transmitting any subsequent SRs to the base station." *Id.* Claim 14 adds the limitation that the data processor is configured to determine whether a scheduling request triggering event has occurred "by determining whether second data that became available for transmission to the base station after the first SR was transmitted has a higher priority than the first data."

Importantly, the limitations above disclose a specific manner of configuring a mobile terminal to communicate with a base station to schedule resources in an efficient and improved manner, rather than using conventional methods[2] to generically schedule resources. The '293 patent solves a critical problem related to cellular telephones in packet-based networks—how to efficiently schedule resources by minimizing control signaling overhead while increasing

[2] Notably, Huawei is not asserting any anticipatory references against claim 14 under 35 U.S.C. § 102, but rather only a § 103 combination.

equipment battery life and the scheduler's knowledge of each phone's buffer information.

The priority application for the '293 patent was filed in June 2007, during 3GPP's development of the LTE wireless standard. '293 patent col. 1:28-32. Unlike the existing WCDMA technology, the patent teaches that because LTE is "designed to support fast scheduling in frequency and time for both uplink and downlink," resource assignments should be "adjustable to the users' momentary traffic demand and channel variations." '293 patent col. 1:48-52. In order to support fast scheduling, the scheduler "would have to be made aware of the UE [mobile phone]'s momentary traffic demands (e.g., the transmit buffer status)." *Id.* col. 1:67-2:3. But the scheduler is "not automatically aware of each user's uplink data and resource demand," which complicates scheduling between multiple mobile phones. *Id.* col. 1:60-63.

The claimed solution allows for a single-bit SR, while informing the base station scheduler of important changes to buffer status without blindly granting unnecessary uplink resources. *Id.* col. 6:10-15. As taught and claimed in the '293 patent, the UEs "are configured to transmit an SR only when all of the following are true: (1) the UE has no uplink grant; (2) the UE has data to transmit to the eNodeB; and (3) the buffer status has 'changed' since the last acknowledged buffer report was transmitted." *Id.* col. 6:27-32. The patent discloses that the buffer status is considered to have "changed" only if one or more of certain predefined conditions are met. *Id.* col. 6:36-42, 62-66. As one example, a predefined condition may be met when data arrives in a UEs transmit buffer than is of a higher priority than the previously reported data. *Id.* col. 6:21-24, cl. 14; *see also* col. 6:27-43 (other examples). Also, the patent instructs that an SR should be transmitted every time data arrives to an empty UE transmit buffer. *Id.* col. 6:43-45. These configuration limitations are found in claim elements 12(c)-(c2), and a higher-priority-based triggering limitation is found in claim 14.

Under the novel invention of the '293 patent, the mobile device only transmits a one-bit SR when new data enters its empty buffer, or—if it has already transmitted buffer status information and still has data in the buffer—when the buffer status has changed in a predefined way (such as the arrival of higher-priority data). *Id.* col. 7:50-60. This solution achieves the LTE goal of supporting "fast scheduling" by keeping the base station aware of all mobile device's momentary traffic demands. The benefits of claim 14 over the problem identified in reference Figure 4 are shown through the example in Figure 5 and the specification at col. 7:22-8:8. In addition, the '293 patent improves the efficiency of the mobile terminal by decreasing power consumption for the scheduling request channel. *Id.* col. 10:31-32. As discussed above, the invention further allows the mobile device to keep the scheduler informed of all relevant changes to buffer status without creating additional overhead or wasting uplink resources.

Far from being directed to the abstract idea of scheduling, claims 12 and 14 of the '293 patent are directed at a specific implementation in a mobile device that is intended to improve performance. These claims are directed to "improvement in the functioning" of the system itself, or "improvement of an existing technological process," subject matter that courts have repeatedly found to be patent-eligible. *Core Wireless*, 880 F.3d at 1363, *Enfish*, 822 F.3d at 1337; *see also DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014) ("the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks"). These claims are directed to a specific type of scheduling in a mobile device, and are designed to solve problems that arise within dynamic scheduling of packet traffic in LTE networks. Because the claims are not directed toward an abstract idea, the claim is patent-eligible under § 101, and the question under *Alice* step two need not be submitted to the jury.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

This is to certify that a true copy of this document has been served on Defendants' counsel of record via the Court's ECF system on August 21, 2018.

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